FIG.1A

CGGGGAGGAATATGCTGTGGGAGCTCCTCTGCCATATAAACAAAAAGAGGAAATCTTTCAA 60

ACATGGCTGAAGCAAAGACCCACTGGCTTGGAGCAGCCCTGTCTCTTATCCCTTTAATTT 120
  M A E A K T H W L G A A L S L I P L I F 20

TCCTCATCTCTGGGGCTGAAGCAGCTTCATTTCAGAGAAACCAGCTGCTTCAGAAAGAAC 180
 L I S G A E A A S F Q R N Q L L Q K E P 40

CAGACCTCAGGTTGGAAAATGTCCAAAAGTTCCCAGTCCTGAAATGATCAGGGCTTTGG 240
 D L R L E N V Q K F P S P E M I R A L E 60

AGTACATAGAAAACCCCTTAAACGCACAAATGAAATAGTGGAGGAACAATATACTCCTC 300
 Y I E N P F K R T N E I V E E Q Y T P Q 80

AAAGCCTTGCTACATTGGAATCTGTCTTCCAAGAGCTGGGAAACTGACAGGACCAAACA 360
 S L A T L E S V F Q E L G K L T G P N N 100

ACCAGAAACGTGAGAGGATGGATGAGGAGCAAAAACTTATACGGATGATGAAGATGATA 420
 Q K R E R M D E E Q K L Y T D D E D D I 120

TCTACAAGGCTAATAACATTGCCTATGAAGAGATGTGGTCGGGGGGAGAAGACTGGAACCCAG 480
 Y K A N N I A Y E D V V G G E D W N P V 140

FIG.1B

```
TAGAGGAGAGAAAAATAGAGAGTCAAACCCAGGAAGAGAGTGAGAGACAGCAAAGAGAATATAG 540
  E  E  K  I  E  S  Q  T  Q  E  E  V  R  D  S  K  E  N  I  G           160

GAAAAAAATGAACAAATCAACGATGAGATGAAAACGCTCAGGGCAGCTTGGCATCCAGGAAG 600
  K  N  E  Q  I  N  D  E  M  K  R  S  G  Q  L  G  I  Q  E  E           180

AAGATCTTCGGAAAGAGAGTAAAGACCAACTCTCAGATGATGTCTCCAAAGTAATTGCCT 660
  D  L  R  K  E  S  K  D  Q  L  S  D  D  V  S  K  V  I  A  Y           200

ATTTGAAAAGGTTAGTAAATGCTGCAGGAGTGGAGGTTACAGAAAATGGGG 720
  L  K  R  L  V  N  A  A  G  S  G  R  L  Q  N  G  Q  N  G  E           220

AAAGGGCCACCAGGCTTTTTGAGAAACCTCTTGATTCTCAGTCTATTTATCAGCTGATTG 780
  R  A  T  R  L  F  E  K  P  L  D  S  Q  S  I  Y  Q  L  I  E           240

AAAATCTCAAGGAATTTACAGATACCCCCAGAAGACTTAATTGAGATGCTCAAAACTGGGG 840
  I  S  R  N  L  Q  I  P  P  E  D  L  I  E  M  L  K  T  G  E           260

AGAAGCCGAATCAGTGGAACCGGGAGCTTGACCTTCCTGTTGACCTAGATG 900
  K  P  N  G  S  V  E  P  E  R  E  L  D  L  P  V  D  L  D  D           280

ACATCTCAGAGGCTGACTTAGACCATCCAGACCTGTTCCAAAATAGGATGCTCTCCAAGA 960
  I  S  E  A  D  L  D  H  P  D  L  F  Q  N  R  M  L  S  K  S           300
```

FIG.1C

```
GTGGCTACCCTAAAACACCTGGTCGTGCTGGGACTGAGGCCCTACCAGACGGGCTCAGTG 1020
  G  Y  P  K  T  P  G  R  A  G  T  E  A  L  P  D  G  L  S  V   320

TTGAGGATATTTAAATCTTTAGGGATGGAGAGTGCAGCAAATCAGAAAACGTCGTATT 1080
  E  D  I  L  N  L  G  M  E  S  A  A  N  Q  K  T  S  Y  F     340

TTCCCAATCCCATATAACCAGGAGAAAGTTCTGCCAAGGCTCCCTTATGGTGCTGGAAGAT 1140
  P  N  P  Y  N  Q  E  K  V  L  P  R  L  P  Y  G  A  G  R  S   360

CTAGATCGAACCAGCTTCCCAAAGCTGCCTGGATTCCACATGTTGAAAACAGACAGATGG 1200
  R  S  N  Q  L  P  K  A  A  W  I  P  H  V  E  N  R  Q  M  A   380

CATATGAAAAACCTGAACAAGGATCAAGAATTAGGTGAGTACTTGGCCAGGATGCTAG 1260
  Y  E  N  L  N  D  K  D  Q  E  L  G  E  Y  L  A  R  M  L  V   400

TTAAATACCCTGAGATCATTAATTCAAACCAAGTGAAGCCGAGTTCCTGGTCAAGGCTCAT 1320
  K  Y  P  E  I  I  N  S  N  Q  V  K  R  V  P  G  Q  G  S  S   420

CTGAAGATGACCTGCAGGAGGAGAACAAATTGAGCAGGCCATCAAAGAGCATTTGAAATC 1380
  E  D  D  L  Q  E  E  E  Q  I  E  Q  A  I  K  E  H  L  N  Q   440
```

FIG.1D

AAGGCAGCTCTCAGGAGACTGACAAGCTGGCCCCGGTGAGCAAAAGGTTCCCTGTGGGGC 1440

 G S S Q E T D K L A P V S K R F P V G P 460

CCCCGAAGAATGATGATACCCCAAATAGGCAGTACTGGGATGAAGATCTGTTAATGAAAG 1500

 P K N D D T P N R Q Y W D E D L L M K V 480

TGCTGGAATACCTCAATCAAGAAAAGGCAGAAAAGGGAGCATATTGCTAAGAGAG 1560

 L E Y L N Q E K A E K G R E H I A K R A 500

CAATGGAAAATATGTAAGCTGCTTTCATTAATTACCCTACTTTCATTCCTCCACCCCCAA 1620

 M E N M * 504

GCAAATCCCAACATTTCTCTTCAGTGTGTTGACTTCTATCCCTGTTAACACTGTAATATCT 1680

TTAAATGATGTACAGGCAGATGAAACCAGGTCACTGGGGAGTCTGCTTCATTCCCTCTGA 1740

GCTGTTATCTTGTGTATGGGATATGTGTAAATGTTATGACTCCCTTGATAAAAAATTATTA 1800

TGTCCATTATTCAAGAAAGAGATATCTATGACTGTGTTAAATAGTATATCTAATGGCTGTGG 1860

FIG.1E

CATTGTTGATGCTCACATATGATAAAAAAGTGTCCTATAATTCTATTGAAAGTTTTTAAT 1920

ATTTATTGAATTATTTGTTACTGTCTGTAGCGTTTGTGGAGTACTGGACCAAAAAAT 1980

AAAGCATTATAAATATA 1997

FIG.2A

```
CGGGGAGGAATATGCTGTGGGAGCTCCTCTGCCAATATAAAAACAAAAGAGGAAATCTTTCAA   60

ACATGGCTGAAGCAAAGACCCACTGGCTTGGAGCAGCCCTGTCTCTTATCCCCTTTAATTT   120
  M  A  E  A  K  T  H  W  L  G  A  A  L  S  L  I  P  L  I  F    20

TCCTCATCTCTGGGGCTGAAGCAGCAGCTTCATTTCAGAGAAACCAGCTGCTTCAGAAGAAC   180
L  I  S  G  A  E  A  A  S  F  Q  R  N  Q  L  L  Q  K  E  P    40

CAGACCTCAGGTTGGAAAATGTCCAAAAGTTCCCAGTCCTGAAATGATCAGGGCTTTGG   240
D  L  R  L  E  N  V  Q  K  F  P  S  P  E  M  I  R  A  L  E    60

AGTACATAGAAAACCTCCGACAACAAGCTCATAAGAAAGAAAAGCTTAAGCACATGCAATT   300
Y  I  E  N  L  R  Q  Q  A  H  K  K  E  S  L  S  T  C  N  S    80

CCCTCCTATGTATGAGAGAATTCCAGGGATAACCCCTTTAAACGCACAAATGAAATAGT   360
L  C  M  K  R  I  P  G  I  T  P  L  N  A  Q  M  K  *         98

GGAGGAACAATATACTCCTCAAAGCCTTGCTACATTGGAATCTGTCTTCCAAGAGCTGGG   420

GAAACTGACAGGACCAAACAACCAGAAAACGTGAGAGGATGAGGAGCAAAAACTTTA   480
```

FIG.2B

```
TACGGATGATGAAGATGATATCTÁCAAGGCTAATAACATTGCCTATGAAGAGATGTGGTCGG  540

GGGAGAAGACTGGAACCCAGTAGAGGAGAAAATAGAGAGTCAAACCCAGGAAGAGAGGTGAG  600

AGACAGCAAAGAGAATATAGGAAAAAAATGAACAAATCAACGATGAGATGAAACGCTCAGG   660

GCAGCTTGGCATCCCAGGAAGAAGATCTTCGGAAAGAGAGTAAAGACCAACTCTCAGATGA   720

TGTCTCCAAAGTAATTGCCTATTTGAAAAGGTTAGTAAATGCTGCAGGAAGTGGGAGGTT    780

ACAGAATGGGCAAAATGGGGAAAGGGCCACCAGGCTTTTTGAGAAACCTCTTGATTCTCA    840

GTCTATTTATCAGCTGATTGAAATCTCAAGGAATTACAGATACCCCCAGAAGACTTAAT     900

TGAGATGCTCAAAAACTGGGGAGAAGCCGAATGGATCAGTGGAACCGGAGCGGGGAGCTTGA  960
```

FIG.2C

```
CCTTCCTGTTGACCTAGATGACATCTCAGAGGCTGACTTAGACCATCCAGACCTGTTCCA   1020

AAATAGGATGCTCTCCAAGAGTGGCTACCCTAAAACACCTGGTCGTGCTGGGACTGAGGC   1080

CCTACCAGACGGGCTCAGTGTGTTGAGGATATTTTAAATCTTTAGGGATGGAGAGTGCAGC   1140

AAATCAGAAAACGTCGTATTTTCCCAATCCATATAACCAGGAGAGAAAGTTCTGCCAAGGCT   1200

CCCTTATGGTGCTGGAAGATCTAGATCGAACCAGCTTCCCAAAGCTGCCTGGATTCCACA   1260

TGTTGAAAAACAGAGACAGATGGCATATGAAAACCTGAACGACAAGGATCAAGAATTAGGTGA   1320

GTACTTGGCCAGGATGCTAGTTAAATACCCTGAGATCATTAATTCAAACCAAGTGAAGCG   1380

AGTTCCTGGTCAAGGCTCATCTCTGAAGATGACCTGCAGGAAGAGGAACAAATTGAGCGAGGC   1440
```

FIG.2D

CATCAAAGAGCATTTGAATCAAGGCAGCTCTCAGGAGACTGACAAGCTGGCCCCGGTGAG 1500

CAAAAGGTTCCCTGTGGGGCCCCGAAGAATGATGATACCCCAAATAGGCAGTACTGGGA 1560

TGAAGATCTGTTAATGAAAGTGCTGGAATACCTCAATCAAGAGAAAGGCAGAAAAGGGAAG 1620

GGAGCATATTGCTAAGAGAGCAATGGAAAAATATGTAAGCTGCTTTCATTAATTACCCTAC 1680

TTTCATTCCTCCCACCCCAAGCAAATCCCAACATTTCTCTTCAGTGTGTTGACTTCTATC 1740

CTGTTAACACTGTAATATCTTTAAATGATGTACAGGCAGATGAAACCAGGTCACTGGGGA 1800

GTCTGCTTCATTCCTCTGAGCTGTTATCTTGTGTATGGATATGTGTAAAATGTTATGACT 1860

CCTTGATAAAAATTTATTATGTCCATTATTCAAGAAAGATATCTATGACTGTGTTTAAT 1920

FIG.2E

AGTATATCTAATGGCTGTGGCATTGTTGATGCTCACATATGATAAAAAAGTGTCCTATAA 1980

TTCTATTGAAAGTTTTAATATTTATTTATTGAATTATTTGTTACTGTCTCGTAGCGTTTTGTG 2040

GAGTACTGGACCAAAAAAATAAAGCATTATAAATATA 2077

FIG.3A

CGGGGAGGAATATGCTGTGTGGGAGCTCCTCTGCCATATAAACAAAAGAGGAAATCTTTCAA 60

ACATGGCTGAAGCAAAGACCCACTGGCTTGGAGCAGCCCTGTCTCTTATCCCTTTAATTT 120
M A E A K T H W L G A A L S L I P L I F 20

TCCTCATCTCTGGGGCTGAAGCAGCTTCATTTCAGAGAAACCAGCTGCTTCAGAAAGAAC 180
L I S G A E A A S F Q R N Q L L Q K E P 40

CAGACCTCAGGTTGGAAAATGTCCAAAAGTTCCCAGTCCTGAAATGATCAGGGCTTTGG 240
D L R L E N V Q K F P S P E M I R A L E 60

AGTACATAGAAAACCTCCGACAACAGCTCATAAGGAAGAAAGCAGCCCAGATTATAATC 300
Y I E N L R Q Q A H K E E S S P D Y N P 80

CCTACCAAGGTGTCTCGTCCCCCTTCAGCAAAAAGAAAATGGCGATGAAAGCCACTTGC 360
Y Q G V S V P L Q Q K E N G D E S H L P 100

CCGAGAGGGATTCACTGAGTGAAGAAGACTGGATGAGAATAATACTCGAAGCTTTGAGAC 420
E R D S L S E E D W M R I I L E A L R Q 120

AGGCTGAAAATGAGCCTCAGTCTGCACCAAAAGAAAATAAGCCCTATGCCCTTGAATTCAG 480
A E N E P Q S A P K E N K P Y A L N S E 140

FIG.3B

AAAGAACTTTCCAATGGACACATGAGTGATGATTATGAGACACAGCAGTGGCCAGAAAGAA 540

K N F P M D M S D D Y E T Q Q W P E R K 160

AGCTTAAGCACATGCAATTCCCTCCTATGTATGAAGAGAATTCCAGGGATAACCCCTTA 600

L K H M Q F P P M Y E E N S R D N P E K 180

AACCGCACAAATGAAATAGTGGAGGAACAATATACTCCTCAAAGCCTTGCTACATTGGAAT 660

R T N E I V E E Q Y T P Q S L A T L E S 200

CTGTCTTCCAAGAGCTGGGGAAACTGACAGGACCAAACAACCAGAAACGTGAGAGGATGG 720

V F Q E L G K L T G P N N Q K R E R M D 220

ATGAGGAGCAAAAACTTTATACGGATGATGAAGATGATATCTACAAGGCTAATAACATTG 780

E E Q K L Y T D D E D D I Y K A N N I A 240

CCTATGAAGATGTGGTCGGGGGAGAAGACTGGAACCCAGTAGAGGAGAAAATAGAGAGTC 840

Y E D V V G G E D W N P V E E K I E S Q 260

AAACCCAGGAAGAGGTGAGAGACAGCAAAGAGAATATAGGAAAAAATGAACAAATCAACG 900

T Q E E V R D S K E N I G K N E Q I N D 280

ATGAGATGAAACGCTCAGGGCAGCTTGGCATCCAGGAAGAAGATCTTCGGAAAGAGAGTA 960

E M K R S G Q L G I Q E E D L R K E S K 300

FIG.3C

AAGACCAACTCTCAGATGATGTCTCTCCAAAGTAATTGCCTATTTGAAAAGGTTAGTAAATG 1020
D Q L S D D V S K V I A Y L K R L V N A 320

CTGCAGGAAGTGGGAGGTTACAGAATGGGCAAAATGGGGAAAGGCCACCAGGCTTTTG 1080
A G S G R L Q N G Q N G E R A T R L F E 340

AGAAACCTCTTGATTCTCAGTCTCTATTATCAGCTGATTGAAATCTCAAGGAATTACAGA 1140
K P L D S Q S I Y Q L I E I S R N L Q I 360

TACCCCCAGAAGACTTAATTGAGATGCTCAAAACTGGGGAGAAGCCGAATGGATCAGTGG 1200
P P E D L I E M L K T G E K P N G S V E 380

AACCGGAGCGGGAGCTTGACCTTCCTGTTGACCTAGATGACATCTCAGAGGCTGACTTAG 1260
P E R E L D L P V D L D D I S E A D L D 400

ACCATCCAGACCTGTTCCAAAATAGGATGCTCTCCAAGAGTGGCTACCCTAAAACACCTG 1320
H P D L F Q N R M L S K S G Y P K T P G 420

GTCGTGCTGGGACTGAGGCCCTACCAGACGGGCTCAGTGTTGAGGATATTTAAATCTTT 1380
R A G T E A L P D G L S V E D I L N L L 440

TAGGGATGGAGAGTGCAGCAAATCAGAAAACGTCGTATTTTCCCAAGCAAATCCCAACAT 1440
G M E S A A N Q K T S Y F P K Q I P T F 460

FIG.4A

```
                     1                                                              60
SGIIV1  CGGGGAGGAATATGC TGTGGAGCTCCCTCTG CCATATAAACAAAAA GAGGAAATCTTTCAA
SGIIV2  CGGGGAGGAATATGC TGTGGAGCTCCCTCTG CCATATAAACAAAAA GAGGAAATCTTTCAA
SGIIV3  CGGGGAGGAATATGC TGTGGAGCTCCCTCTG CCATATAAACAAAAA GAGGAAATCTTTCAA
SGII    CGGGGAGGAATATGC TGTGGAGCTCCCTCTG CCATATAAACAAAAA GAGGAAATCTTTCAA

                     61                                                            120
SGIIV1  ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGCCCTGTCTC TTATCCCTTTAATTT
SGIIV2  ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGCCCTGTCTC TTATCCCTTTAATTT
SGIIV3  ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGCCCTGTCTC TTATCCCTTTAATTT
SGII    ACATGGCTGAAGCAA AGACCCACTGGCTTG GAGCAGCCCTGTCTC TTATCCCTTTAATTT
```

FIG.4B

```
        121                                                                    180
SGIIV1  TCCTCATCTCTGGGG  CTGAAGCAGCTTCAT  TTCAGAGAAACCAGC  TGCTTCAGAAAGAAC
SGIIV2  TCCTCATCTCTGGGG  CTGAAGCAGCTTCAT  TTCAGAGAAACCAGC  TGCTTCAGAAAGAAC
SGIIV3  TCCTCATCTCTGGGG  CTGAAGCAGCTTCAT  TTCAGAGAAACCAGC  TGCTTCAGAAAGAAC
SGII    TCCTCATCTCTGGGG  CTGAAGCAGCTTCAT  TTCAGAGAAACCAGC  TGCTTCAGAAAGAAC

        181                                                                    240
SGIIV1  CAGACCTCAGGTTGG  AAAATGTCCAAAAGT  TTCCCAGTCCTGAAA  TGATCAGGGCTTTGG
SGIIV2  CAGACCTCAGGTTGG  AAAATGTCCAAAAGT  TTCCCAGTCCTGAAA  TGATCAGGGCTTTGG
SGIIV3  CAGACCTCAGGTTGG  AAAATGTCCAAAAGT  TTCCCAGTCCTGAAA  TGATCAGGGCTTTGG
SGII    CAGACCTCAGGTTGG  AAAATGTCCAAAAGT  TTCCCAGTCCTGAAA  TGATCAGGGCTTTGG
```

FIG.4C

```
       241                                                          300
           |              |              |              |
SGIIV1 AGTACATAGAAAACC ---------------  ---------------
SGIIV2 AGTACATAGAAAACC TCCGACAACAAGCTC ATAAG----------
SGIIV3 AGTACATAGAAAACC TCCGACAACAAGCTC ATAAGGAAGAAAGCA GCCCAGATTATAATC
SGII   AGTACATAGAAAACC TCCGACAACAAGCTC ATAAGGAAGAAAGCA GCCCAGATTATAATC

       301                                                          360
           |              |              |              |
SGIIV1 ---------------  ---------------
SGIIV2 ---------------  ---------------
SGIIV3 CCTACCAAGGTGTCT CTGTCCCCTTCAGC AAAAAGAAAAATGGCG ATGAAAGCCACTTGC
SGII   CCTACCAAGGTGTCT CTGTCCCCTTCAGC AAAAAGAAAAATGGCG ATGAAAGCCACTTGC
```

FIG.4D

```
          361                                                                    420
SGIIV1    --------- ---------- ----------- ------------- ----------- ----------------
SGIIV2    --------- ---------- ----------- ------------- ----------- ----------------
SGIIV3    CCGAGAGGGATTCAC TGAGTGAAGAAGACT GGATGAGAATAAATAC TCGAAGCTTTGAGAC
SGII      CCGAGAGGGATTCAC TGAGTGAAGAAGACT GGATGAGAATAAATAC TCGAAGCTTTGAGAC

          421                                                                    480
SGIIV1    --------- ---------- ----------- ------------- ----------- ----------------
SGIIV2    --------- ---------- ----------- ------------- ----------- ----------------
SGIIV3    AGGCTGAAAATGAGC CTCAGTCTGCACCAA AAGAAAATAAGCCCT ATGCCTTGAATTCAG
SGII      AGGCTGAAAATGAGC CTCAGTCTGCACCAA AAGAAAATAAGCCCT ATGCCTTGAATTCAG
```

FIG.4E

```
                                                                            540
SGIIV1   ------------ ------------ ------------ ------------ ------------
SGIIV2   ------------ ------------ ------------ ------------ ----AAAGAA
SGIIV3   AAAAGAACTTTCCAA TGGACATGAGTGATG ATTATGAGACACAGC AGTGGCCAGAAAGAA
SGII     AAAAGAACTTTCCAA TGGACATGAGTGATG ATTATGAGACACAGC AGTGGCCAGAAAGAA

                                                                            600
SGIIV1   ------------ ------------ ------------ ------------ ----CCTTTA
SGIIV2   AGCTTAAGCACATGC AATTCCCTCCCTATGT ATGAAGAGAATTCCA GGGATAACCCCTTTA
SGIIV3   AGCTTAAGCACATGC AATTCCCTCCCTATGT ATGAAGAGAATTCCA GGGATAACCCCTTTA
SGII     AGCTTAAGCACATGC AATTCCCTCCCTATGT ATGAAGAGAATTCCA GGGATAACCCCTTTA
```
481
541

FIG.4F

```
          601                                                                        660
SGIIV1  AACGCACAAATGAAA  TAGTGGAGGAACAAT  ATACTCCTCAAAGCC  TTGCTACATTGGAAT
SGIIV2  AACGCACAAATGAAA  TAGTGGAGGAACAAT  ATACTCCTCAAAGCC  TTGCTACATTGGAAT
SGIIV3  AACGCACAAATGAAA  TAGTGGAGGAACAAT  ATACTCCTCAAAGCC  TTGCTACATTGGAAT
SGII    AACGCACAAATGAAA  TAGTGGAGGAACAAT  ATACTCCTCAAAGCC  TTGCTACATTGGAAT


          661                                                                        720
SGIIV1  CTGTCTTCCAAGAGC  TGGGGAAACTGACAG  GACCAAACAACCAGA  AACGTGAGAGGATGG
SGIIV2  CTGTCTTCCAAGAGC  TGGGGAAACTGACAG  GACCAAACAACCAGA  AACGTGAGAGGATGG
SGIIV3  CTGTCTTCCAAGAGC  TGGGGAAACTGACAG  GACCAAACAACCAGA  AACGTGAGAGGATGG
SGII    CTGTCTTCCAAGAGC  TGGGGAAACTGACAG  GACCAAACAACCAGA  AACGTGAGAGGATGG
```

FIG.4G

```
                                                    780
721 SGIIV1 ATGAGGAGCAAAAAC TTTATACGGATGATG AAGATGATATCTACA AGGCTAATAACATTG
    SGIIV2 ATGAGGAGCAAAAAC TTTATACGGATGATG AAGATGATATCTACA AGGCTAATAACATTG
    SGIIV3 ATGAGGAGCAAAAAC TTTATACGGATGATG AAGATGATATCTACA AGGCTAATAACATTG
    SGII   ATGAGGAGCAAAAAC TTTATACGGATGATG AAGATGATATCTACA AGGCTAATAACATTG

                                                    840
781 SGIIV1 CCTATGAAGATGTGG TCGGGGGAGAAGACT GGAACCCAGTAGAGG AGAAAATAGAGAGTC
    SGIIV2 CCTATGAAGATGTGG TCGGGGGAGAAGACT GGAACCCAGTAGAGG AGAAAATAGAGAGTC
    SGIIV3 CCTATGAAGATGTGG TCGGGGGAGAAGACT GGAACCCAGTAGAGG AGAAAATAGAGAGTC
    SGII   CCTATGAAGATGTGG TCGGGGGAGAAGACT GGAACCCAGTAGAGG AGAAAATAGAGAGTC
```

FIG.4H

```
         841                                                    900
SGIIV1 AAACCCAGGAAGAGG TGAGAGACAGCAAAG AGAATATAGGAAAAA ATGAACAAATCAACG
SGIIV2 AAACCCAGGAAGAGG TGAGAGACAGCAAAG AGAATATAGGAAAAA ATGAACAAATCAACG
SGIIV3 AAACCCAGGAAGAGG TGAGAGACAGCAAAG AGAATATAGGAAAAA ATGAACAAATCAACG
SGII   AAACCCAGGAAGAGG TGAGAGACAGCAAAG AGAATATAGGAAAAA ATGAACAAATCAACG

         901                                                    960
SGIIV1 ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAAGATC TTCGGAAAGAGAGTA
SGIIV2 ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAAGATC TTCGGAAAGAGAGTA
SGIIV3 ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAAGATC TTCGGAAAGAGAGTA
SGII   ATGAGATGAAACGCT CAGGGCAGCTTGGCA TCCAGGAAGAAGATC TTCGGAAAGAGAGTA
```

FIG.4I

```
      961
SGIIV1 AAGACCAACTCTCAG ATGATGTCTCCAAAG TAATTGCCTATTTGA AAAGGTTAGTAAATG
SGIIV2 AAGACCAACTCTCAG ATGATGTCTCCAAAG TAATTGCCTATTTGA AAAGGTTAGTAAATG
SGIIV3 AAGACCAACTCTCAG ATGATGTCTCCAAAG TAATTGCCTATTTGA AAAGGTTAGTAAATG
SGII   AAGACCAACTCTCAG ATGATGTCTCCAAAG TAATTGCCTATTTGA AAAGGTTAGTAAATG
                                                              1020

      1021
SGIIV1 CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGGAAAGGG CCACCAGGCTTTTTG
SGIIV2 CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGGAAAGGG CCACCAGGCTTTTTG
SGIIV3 CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGGAAAGGG CCACCAGGCTTTTTG
SGII   CTGCAGGAAGTGGGA GGTTACAGAATGGGC AAAATGGGGAAAGGG CCACCAGGCTTTTTG
                                                              1080
```

FIG.4J

```
        1081                                                        1140
SGIIV1  AGAAACCTCTTGATT CTCAGTCTATTTATC AGCTGATTGAAAATCT CAAGGAATTTACAGA
SGIIV2  AGAAACCTCTTGATT CTCAGTCTATTTATC AGCTGATTGAAAATCT CAAGGAATTTACAGA
SGIIV3  AGAAACCTCTTGATT CTCAGTCTATTTATC AGCTGATTGAAAATCT CAAGGAATTTACAGA
SGII    AGAAACCTCTTGATT CTCAGTCTATTTATC AGCTGATTGAAAATCT CAAGGAATTTACAGA

        1141                                                        1200
SGIIV1  TACCCCCAGAAGACT TAATTGAGATGCTCA AAACTGGGGAGAAGC CGAATGGATCAGTGG
SGIIV2  TACCCCCAGAAGACT TAATTGAGATGCTCA AAACTGGGGAGAAGC CGAATGGATCAGTGG
SGIIV3  TACCCCCAGAAGACT TAATTGAGATGCTCA AAACTGGGGAGAAGC CGAATGGATCAGTGG
SGII    TACCCCCAGAAGACT TAATTGAGATGCTCA AAACTGGGGAGAAGC CGAATGGATCAGTGG
```

FIG.4K

```
      1201                                                            1260
SGIIV1  AACCGGAGCGGGAGC  TTGACCTTCCTGTTG  ACCTAGATGACATCT  CAGAGGCTGACTTAG
SGIIV2  AACCGGAGCGGGAGC  TTGACCTTCCTGTTG  ACCTAGATGACATCT  CAGAGGCTGACTTAG
SGIIV3  AACCGGAGCGGGAGC  TTGACCTTCCTGTTG  ACCTAGATGACATCT  CAGAGGCTGACTTAG
SGII    AACCGGAGCGGGAGC  TTGACCTTCCTGTTG  ACCTAGATGACATCT  CAGAGGCTGACTTAG

      1261                                                            1320
SGIIV1  ACCATCCAGACCTGT  TCCAAAATAGGATGC  TCTCCAAGAGTGGCT  ACCCTAAAACACCTG
SGIIV2  ACCATCCAGACCTGT  TCCAAAATAGGATGC  TCTCCAAGAGTGGCT  ACCCTAAAACACCTG
SGIIV3  ACCATCCAGACCTGT  TCCAAAATAGGATGC  TCTCCAAGAGTGGCT  ACCCTAAAACACCTG
SGII    ACCATCCAGACCTGT  TCCAAAATAGGATGC  TCTCCAAGAGTGGCT  ACCCTAAAACACCTG
```

FIG.4L

```
        1321                                                                      1380
SGIIV1  GTCGTGCTGGGACTG  AGGCCCTACCAGACG  GGCTCAGTGTTGAGG  ATATTTAAATCTTT
SGIIV2  GTCGTGCTGGGACTG  AGGCCCTACCAGACG  GGCTCAGTGTTGAGG  ATATTTAAATCTTT
SGIIV3  GTCGTGCTGGGACTG  AGGCCCTACCAGACG  GGCTCAGTGTTGAGG  ATATTTAAATCTTT
SGII    GTCGTGCTGGGACTG  AGGCCCTACCAGACG  GGCTCAGTGTTGAGG  ATATTTAAATCTTT

        1381                                                                      1440
SGIIV1  TAGGGATGGAGAGTG  CAGCAAATCAGAAAA  CGTCGTATTTCCCA  ATCCATATAACCAGG
SGIIV2  TAGGGATGGAGAGTG  CAGCAAATCAGAAAA  CGTCGTATTTCCCA  ATCCATATAACCAGG
SGIIV3  TAGGGATGGAGAGTG  CAGCAAATCAGAAAA  CGTCGTATTTCCCA  A------------
SGII    TAGGGATGGAGAGTG  CAGCAAATCAGAAAA  CGTCGTATTTCCCA  ATCCATATAACCAGG
```

FIG.4M

```
                                                           1500
SGIIV1  AGAAAGTTCTGCCAA GGCTCCCTTATGGTG CTGGAAGATCTAGAT CGAACCAGCTTCCCA
SGIIV2  AGAAAGTTCTGCCAA GGCTCCCTTATGGTG CTGGAAGATCTAGAT CGAACCAGCTTCCCA
SGIIV3  --------------- --------------- --------------- ---------------
SGII    AGAAAGTTCTGCCAA GGCTCCCTTATGGTG CTGGAAGATCTAGAT CGAACCAGCTTCCCA

  1501                                                     1560
SGIIV1  AAGCTGCCTGGATTC CACATGTTGAAAAACA GACAGATGGCATATG AAAACCTGAACGACA
SGIIV2  AAGCTGCCTGGATTC CACATGTTGAAAAACA GACAGATGGCATATG AAAACCTGAACGACA
SGIIV3  --------------- ---------------- --------------- ---------------
SGII    AAGCTGCCTGGATTC CACATGTTGAAAAACA GACAGATGGCATATG AAAACCTGAACGACA
```

FIG.4N

```
        1561                                                         1620
SGIIV1  AGGATCAAGAATTAG  GTGAGTACTTGGCCA  GGATGCTAGTTAAAT  ACCCTGAGATCATTA
SGIIV2  AGGATCAAGAATTAG  GTGAGTACTTGGCCA  GGATGCTAGTTAAAT  ACCCTGAGATCATTA
SGIIV3  ---------------  ---------------  ---------------  ---------------
SGII    AGGATCAAGAATTAG  GTGAGTACTTGGCCA  GGATGCTAGTTAAAT  ACCCTGAGATCATTA

        1621                                                         1680
SGIIV1  ATTCAAACCAAGTGA  AGCGAGTTCCTGGTC  AAGGCTCATCTGAAG  ATGACCTGCAGGAAG
SGIIV2  ATTCAAACCAAGTGA  AGCGAGTTCCTGGTC  AAGGCTCATCTGAAG  ATGACCTGCAGGAAG
SGIIV3  ---------------  ---------------  ---------------  ---------------
SGII    ATTCAAACCAAGTGA  AGCGAGTTCCTGGTC  AAGGCTCATCTGAAG  ATGACCTGCAGGAAG
```

FIG.40

```
         1681                                                                    1740
SGIIV1   AGGAACAAAATTGAGC  AGGCCATCAAAGAGC  ATTTGAATCAAGGCA  GCTCTCAGGAGACTG
SGIIV2   AGGAACAAAATTGAGC  AGGCCATCAAAGAGC  ATTTGAATCAAGGCA  GCTCTCAGGAGACTG
SGIIV3   ----------------  ---------------  ---------------  --------------
SGII     AGGAACAAAATTGAGC  AGGCCATCAAAGAGC  ATTTGAATCAAGGCA  GCTCTCAGGAGACTG


         1741                                                                    1800
SGIIV1   ACAAGCTGGCCCCGG   TGAGCAAAAGGTTCC  CTGTGGGGCCCCCGA  AGAATGATGATACCC
SGIIV2   ACAAGCTGGCCCCGG   TGAGCAAAAGGTTCC  CTGTGGGGCCCCCGA  AGAATGATGATACCC
SGIIV3   --------------   ---------------  ---------------  --------------
SGII     ACAAGCTGGCCCCGG   TGAGCAAAAGGTTCC  CTGTGGGGCCCCCGA  AGAATGATGATACCC
```

FIG.4P

```
       1801                                                                    1860
SGIIV1 CAAATAGGCAGTACT GGGATGAAGATCTGT TAATGAAAGTGCTGG AATACCTCAATCAAG
SGIIV2 CAAATAGGCAGTACT GGGATGAAGATCTGT TAATGAAAGTGCTGG AATACCTCAATCAAG
SGIIV3 --------------- --------------- --------------- ---------------
SGII   CAAATAGGCAGTACT GGGATGAAGATCTGT TAATGAAAGTGCTGG AATACCTCAATCAAG

       1861                                                                    1920
SGIIV1 AAAAGGCAGAAAAGG GAAGGGAGCATATTG CTAAGAGAGCAATGG AAAATATGTAAGCTG
SGIIV2 AAAAGGCAGAAAAGG GAAGGGAGCATATTG CTAAGAGAGCAATGG AAAATATGTAAGCTG
SGIIV3 --------------- --------------- --------------- ---------------
SGII   AAAAGGCAGAAAAGG GAAGGGAGCATATTG CTAAGAGAGCAATGG AAAATATGTAAGCTG
```

FIG.4Q

```
        1921                                              1980
SGIIV1  CTTTCATTAATTACC CTACTTTCATTCCTC CCACCCCAAGCAAAT CCCAACATTTCTCTT
SGIIV2  CTTTCATTAATTACC CTACTTTCATTCCTC CCACCCCAAGCAAAT CCCAACATTTCTCTT
SGIIV3  --------------- --------------- -------GCAAAT CCCAACATTTCTCTT
SGII    CTTTCATTAATTACC CTACTTTCATTCCTC CCACCCCAAGCAAAT CCCAACATTTCTCTT

        1981                                              2040
SGIIV1  CAGTGTGTTGACTTC TATCCTGTTAACACT GTAATATCTTAAAT GATGTACAGGCAGAT
SGIIV2  CAGTGTGTTGACTTC TATCCTGTTAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT
SGIIV3  CAGTGTGTTGACTTC TATCCTGTTAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT
SGII    CAGTGTGTTGACTTC TATCCTGTTAACACT GTAATATCTTTAAAT GATGTACAGGCAGAT
```

FIG.4R

```
      2041                                                         2100

SGIIV1  GAAACCAGGTCACTG  GGGAGTCTGCTTCAT  TTCCCTCTGAGCTGTT  ATCTTGTGTATGGAT
SGIIV2  GAAACCAGGTCACTG  GGGAGTCTGCTTCAT  TTCCCTCTGAGCTGTT  ATCTTGTGTATGGAT
SGIIV3  GAAACCAGGTCACTG  GGGAGTCTGCTTCAT  TTCCCTCTGAGCTGTT  ATCTTGTGTATGGAT
SGII    GAAACCAGGTCACTG  GGGAGTCTGCTTCAT  TTCCCTCTGAGCTGTT  ATCTTGTGTATGGAT

      2100                                                         2160

SGIIV1  ATGTGTAAATGTTAT  GACTCCTTGATAAAA  AATTTATTATGTCCA  TTATTCAAGAAAGAT
SGIIV2  ATGTGTAAATGTTAT  GACTCCTTGATAAAA  AATTTATTATGTCCA  TTATTCAAGAAAGAT
SGIIV3  ATGTGTAAATGTTAT  GACTCCTTGATAAAA  AATTTATTATGTCCA  TTATTCAAGAAAGAT
SGII    ATGTGTAAATGTTAT  GACTCCTTGATAAAA  AATTTATTATGTCCA  TTATTCAAGAAAGAT
```

FIG.4S

```
          2161                                                                                            2220
SGIIV1  ATCTATGACTGTGTT  TAATAGTATATCTAA  TGGCTGTGTGGCATTGT  TGATGCTCACACATATG
SGIIV2  ATCTATGACTGTGTT  TAATAGTATATCTAA  TGGCTGTGTGGCATTGT  TGATGCTCACACATATG
SGIIV3  ATCTATGACTGTGTT  TAATAGTATATCTAA. TGGCTGTGTGGCATTGT  TGATGCTCACACATATG
SGII    ATCTATGACTGTGTT  TAATAGTATATCTAA  TGGCTGTGTGGCATTGT  TGATGCTCACACATATG

          2221                                                                                            2280
SGIIV1  ATAAAAAGTGTCCT  ATAATTCTATTGAAA  GTTTTTAATATATTTAT  TGAATTATTTTGTTA
SGIIV2  ATAAAAAGTGTCCT  ATAATTCTATTGAAA  GTTTTTAATATATTTAT  TGAATTATTTTGTTA
SGIIV3  ATAAAAAGTGTCCT  ATAATTCTATTGAAA  GTTTTTAATATATTTAT. TGAATTATTTTGTTA
SGII    ATAAAAAGTGTCCT  ATAATTCTATTGAAA  GTTTTTAATATATTTAT  TGAATTATTTTGTTA
```

FIG.4T

```
        2281

SGIIV3  CTGTCTGTAGCCGTTT  TGTGGAGTACTGGAC  CAAAAAAATAAAGCA  TTATAAATATA 1997
SGIIV1  CTGTCTGTAGCCGTTT  TGTGGAGTACTGGAC  CAAAAAAATAAAGCA  TTATAAATATA 2077
SGIIV2  CTGTCTGTAGCCGTTT  TGTGGAGTACTGGAC  CAAAAAAATAAAGCA  TTATAAATATA 1803
SGII    CTGTCTGTAGCCGTTT  TGTGGAGTACTGGAC  CAAAAAAATAAAGCA  TTATAAATATA 2336
```

FIG.5A

```
           1                                                      60
           |                                                       |
SGIIV1  MAEAKTHWLGAALSL  IPLIFLISGAEAASF  QRNQLLQKEPDLRLE  NVQKFPSPEMIRALE
SGIIV2  MAEAKTHWLGAALSL  IPLIFLISGAEAASF  QRNQLLQKEPDLRLE  NVQKFPSPEMIRALE
SGIIV3  MAEAKTHWLGAALSL  IPLIFLISGAEAASF  QRNQLLQKEPDLRLE  NVQKFPSPEMIRALE
SGII    MAEAKTHWLGAALSL  IPLIFLISGAEAASF  QRNQLLQKEPDLRLE  NVQKFPSPEMIRALE

           61                                                    120
           |                                                       |
SGIIV1  YIEN-----------  ---------------  ---------------  ---------------
SGIIV2  YIENLRQQAHK----  ---------------  ---------------  ---------------
SGIIV3  YIENLRQQAHKEESS  PDYNPYQGVSVPLQQ  KENGDESHLPERDSL  SEEDWMRIILEALRQ
SGII    YIENLRQQAHKEESS  PDYNPYQGVSVPLQQ  KENGDESHLPERDSL  SEEDWMRIILEALRQ
```

FIG.5B

```
                 121                                                         180
SGIIV1  --------------  --------------  --------------  ----------PFK
SGIIV2  --------------  --------------  --------------  ----------
SGIIV3  AENEPQSAPKENKPY ALNSEKNFPMDMSDD YETQQWPERKLKHMQ FPPMYEENSRDNPFK
SGII    AENEPQSAPKENKPY ALNSEKNFPMDMSDD YETQQWPERKLKHMQ FPPMYEENSRDNPFK

                 181                                                         240
SGIIV1  RTNEIVEEQYTPQSL ATLESVFQELGKLTG PNNQKRERMDEEQKL YTDDEDDIYKANNIA
SGIIV2  --------------  --------------  --------------  --------------
SGIIV3  RTNEIVEEQYTPQSL ATLESVFQELGKLTG PNNQKRERMDEEQKL YTDDEDDIYKANNIA
SGII    RTNEIVEEQYTPQSL ATLESVFQELGKLTG PNNQKRERMDEEQKL YTDDEDDIYKANNIA
```

FIG.5C

```
         241                                                                    300
SGIIV1  YEDVVGGGEDWNPVEE  KIESQTQEEVRDSKE  NIGKNEQINDEMKRS  GQLGIQEEDLRKESK
SGIIV2  ---------------   ---------------  ---------------  ---------------
SGIIV3  YEDVVGGGEDWNPVEE  KIESQTQEEVRDSKE  NIGKNEQINDEMKRS  GQLGIQEEDLRKESK
SGII    YEDVVGGGEDWNPVEE  KIESQTQEEVRDSKE  NIGKNEQINDEMKRS  GQLGIQEEDLRKESK

         301                                                                    360
SGIIV1  DQLSDDVSKVIAYLK  RLVNAAGSGRLQNGQ  NGERATRLFEKPLDS  QSIYQLIEISRNLQI
SGIIV2  ---------------  ---------------  ---------------  ---------------
SGIIV3  DQLSDDVSKVIAYLK  RLVNAAGSGRLQNGQ  NGERATRLFEKPLDS  QSIYQLIEISRNLQI
SGII    DQLSDDVSKVIAYLK  RLVNAAGSGRLQNGQ  NGERATRLFEKPLDS  QSIYQLIEISRNLQI
```

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FIG.5D

```
         361                                                              420
SGIIV1   PPEDLIEMLKTGEKP  NGSVEPERELDLPVD  LDDISEADLDHPDLF  QNRMLSKSGYPKTPG
SGIIV2   --------------   --------------   --------------   --------------
SGIIV3   PPEDLIEMLKTGEKP  NGSVEPERELDLPVD  LDDISEADLDHPDLF  QNRMLSKSGYPKTPG
SGII     PPEDLIEMLKTGEKP  NGSVEPERELDLPVD  LDDISEADLDHPDLF  QNRMLSKSGYPKTPG

         421                                                              480
SGIIV1   RAGTEALPDGLSVED  ILNLLGMESAANQKT  SYFPNPYNQEKVLPR  LPYGAGRSRSNQLPK
SGIIV2   --------------   --------------   --------------   --------------
SGIIV3   RAGTEALPDGLSVED  ILNLLGMESAANQKT  SYFP-----------  --------------
SGII     RAGTEALPDGLSVED  ILNLLGMESAANQKT  SYFPNPYNQEKVLPR  LPYGAGRSRSNQLPK
```

FIG.5E

```
         481                                                                          540
SGIIV1   AAWI PHVENRQMAYE   NLNDKDQELGEYLAR   MLVKYPEI INSNQVK   RVPGQGSSEDDLQEE
SGIIV2   ---------------    ---------------   ---------------    ---------------
SGIIV3   ---------------    ---------------   ---------------    ---------------
SGII     AAWI PHVENRQMAYE   NLNDKDQELGEYLAR   MLVKYPEI INSNQVK   RVPGQGSSEDDLQEE

         541                                                                          600
SGIIV1   EQIEQAIKEHLNQGS   SQETDKLAPVSKRFP   VGPPKNDDTPNRQYW   DEDLLMKVLEYLNQE
SGIIV2   ---------------   ---------------   ---------------   ---------------
SGIIV3   ---------------   ---------------   ---------------   ---------------
SGII     EQIEQAIKEHLNQGS   SQETDKLAPVSKRFP   VGPPKNDDTPNRQYW   DEDLLMKVLEYLNQE
```

FIG.5F

```
       601
SGIIV1  KAEKGREHIAKRAME NM------  ------  ------ 504
SGIIV2  ------  ------  --KESLSTCNSLLC MKRIPGITPLNAQMK- 98
SGIIV3  ------  ------  --KQIPTFLFSVLTS ILLTL------ 472
SGII    KAEKGREHIAKRAME NM------  ------  ------ 617
```